

## YOJANA & KURUKSHETRA

**This Section will be helpful for these following topics:**

### 1. Current National Issues and Topics of Social Relevance:

- The Indian economy and issues relating to planning, mobilization of resources, growth, development and employment.
- Issues arising from the social and economic exclusion of large sections from the benefits of development.
- Other issues relating to the development and management of human resource.
- Health issues including the management of Public Health, Health education and ethical concerns regarding health-care, medical research and pharmaceuticals.
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**Sample Articles of the Booklet****CENSUS 2011****OVERVIEW**

## India's 15th Population Census: Some Key Findings

*Leela Visaria*

*The further decline in child sex ratio, in spite of 15 years of ban on sex determination test, makes us somber with realization that social legislations serve a purpose only up to a point*

**T**HE FIRST Census in India, commonly referred to as 1872 Census, was conducted over five years between 1867 and 1872, and thus was not synchronous. The exercise was started by the British who wanted to know the size, composition and characteristics of population in their colonies but it was not conducted over the entire territory controlled by the British. The subsequent Censuses were synchronous and gradually were canvassed throughout the country. Despite political and other problems, Censuses in India have continued to be conducted every 10 years.

After Independence, Parliament passed the Census Act of 1948 and created a post of Census Commissioner. Earlier, the whole operation used to be temporarily set up for 2-3 years and wound up after the census was conducted and results printed. The Act

empowered census officers to ask certain questions and made answering them obligatory for citizens. Information collected is treated as confidential and can be used only for statistical purposes; it cannot be used as evidence in a court of law.

Census is not only a head count. Besides the size of the total population, the Census in India collects and publishes information on various characteristics of the population, such as, age and sex distribution, social and cultural factors such as religion, literacy, languages known, migration and economic activities of the people. Besides, during housing Census conducted a year before the population count, information is also collected on type of housing, amenities and assets possessed by households. Analysis of the data collected from several Censuses provide a unique opportunity to understand the dynamics of and trends in various facets of

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**Table 1**  
**Literacy Rate among men and women in India, 1951-2011**

Census Year	% Literate in 7+ population			Male-Female gap
	Males	Females	Persons	
1951	27.2	8.9	18.3	18.3
1961	40.4	15.4	28.3	25.0
1971	46.0	22.0	34.4	24.0
1981	56.4	29.8	43.6	26.6
1991	64.1	39.3	52.2	24.8
2001	75.3	53.7	64.8	21.6
2011	82.1	65.5	74.0	16.7

*Sarva Siksha Abhiyan*, India's flagship programme launched in 2001-02 to universalise elementary education. Male literacy exceeds 75% throughout the country and exceeds 90% in Kerala and some of the smaller states. The achievement in female literacy in Bihar is noteworthy; from 33% in 2001, it has gone up to 53% or by 20 percentage points. The states causing concern as far as female literacy is concerned are Rajasthan and Andhra Pradesh – both have reported 8 percentage point increase during 2001-2011 and both have less than 60% female literacy.

**Sex Ratio of Population**

The 'good news' is that female to male sex ratio of population has begun to improve – from 927 in 1991 to 933 in 2001 to 940 in 2011. Yet, compared to what is observed elsewhere in most countries in the world, India's sex ratio is anomalous. The British Census commissioners also noted it and were quite puzzled. Quite systematically, they examined a number of factors to understand why there were fewer women in India compared to men in the total population. The possible reasons dwelt upon by them and by other noted population scientists were:

under enumeration of women, more masculine sex ratio at birth compared to observed in other populations, higher mortality experienced by women compared to men due to epidemics (such as plague, malaria and influenza) or deficiency diseases, or due to neglect, premature cohabitation and unskillful midwifery. Except for the persistent survival disadvantage that women experienced from early infancy well into the reproductive period, evidence did not support any of the other factors.

The female to male sex ratio of population historically noted in the contiguous area of Punjab, Haryana, Chandigarh and Delhi, has improved between 2001 and 2011, but it is still below 900 women per 1000 men. On the other hand, sex ratio close to unity is recorded in the southern states of Kerala, Tamil Nadu and Andhra Pradesh. This phenomenon observed since the beginning of the 20<sup>th</sup> Century has persisted even now.

**Child Sex Ratio**

Since 1981 Indian Censuses have made available data on population in the age group 0-6 by sex, as a by product of information on literacy rates

which are calculated for 7+ population, enabling calculation of sex ratio of children in the age group 0-6. (Typically, age data are generated in five year age groups and thus most populations would provide data on children in the age group 0-4 and not 0-6.) The Census Commissioner's office has calculated sex ratio of children aged 0-6 from the previous Censuses of 1961 and 1971 also showing the trend over 50 years (See Table 2).

**Table 2**  
**Sex Ratio\* of Population and of Children aged 0-6 Years in India, 1961-2011**

Census Year	Sex ratio of total population	Sex ratio of children aged 0-6 years
1961	941	976
1971	930	964
1981	934	962
1991	937	945
2001	933	927
2011	940	914

\* Sex ratio is calculated as number of females per 1000 males.

As evident in Table 2, the child sex ratio has steadily declined from 976 in 1961 to 927 in 2001 and further to 914 in 2011. This phenomenon has drawn world wide attention and is largely attributed to the increasing practice of sex detection and selectively aborting female foetuses. Between 2001 and 2011, child sex ratio fell in practically the whole country, giving credence to a belief that the practice of female selective abortion is spreading to parts of the country, where it was not noted earlier. Child sex ratio improved in 2011 from the level in 2001 in Himachal Pradesh,

Haryana, Punjab and marginally in Gujarat; the states where it was below 850. In 2011 in these states, there are still less than 900 girls for 1000 boys.

In a patriarchal Indian society son preference is known to have existed for centuries and persists even today. According to the most recent National Family Health Survey (NFHS) conducted during 2005-06, nearly a quarter of women would prefer more sons than daughters but hardly any would desire more daughters than sons. Further, in depth analysis of the NFHS data have shown that when the couple wants to limit the family size to two or three children only, if the first child is a daughter, the probability of determining the sex of the second child and aborting the foetus if it is of a girl, is quite high. Thus, while the small family norm has become quite acceptable, son preference persists.

Widespread availability and use of prenatal diagnostic techniques for sex determination led to PNDT (Pre-Natal diagnostic Techniques (Regulation and Prevention of misuse) Act) in 1994 banning their use for determining the sex of foetus or revealing it to the parents. The Act was amended and made more stringent in 2003 by allowing appropriate authorities even at the district level to take legal action against the use of sex selection technique by any person at any place. Despite the Act and the widespread campaign promoting 'save the girl child' messages, decline in child sex ratio has continued leading to a concern that neither the implementation of the Act

nor the campaign messages have been very effective.

However, it is important to recognize that besides female selective abortion, girls in Indian have for many decades continued to experience higher mortality compared to boys. Even in recent years, according to the 2008 Sample Registration System data, death rate among girls aged 1-4 years was nearly 40% higher compared to boys. If the sex differentials in mortality continue favouring boys, the deficit of girls would increase over time. When higher female child mortality is coupled with sex selection and female selective abortion, the deficit of girls would indeed increase at a faster pace.

#### *Decline in Child Population*

The 2011 Census is the first one in many decades which counted less absolute number of children in the 0-6 age group. Compared to 2001 Census count of 164 million children, there were 159 million children in 2011, or there were 5 million fewer children in India. This is evident in the share of children in the total population, which declined from 16 percent in 2001 to 13.1 percent in 2011. Among the major states, the only exceptions were Bihar and Jammu & Kashmir, which reported some absolute increase in their child population. In Kerala and Tamil Nadu, children aged 0-6 constitute less than 10 percent of the population but in Rajasthan, Jammu & Kashmir, Uttar Pradesh, Madhya Pradesh and Bihar, children's share in the total population is almost 18 percent. The decline in child population reflects decline in fertility; total fertility rate in India

has come down from an average of 3.1 children born per woman in 2001 to 2.7 in 2009.

For population experts, the provisional findings from the 2011 Census have few surprises. Yet, compared to most projections of the population size, the count was higher and the time when and size at which population would stabilize had to be revised. Also, it implied that India will overtake China by 2030 rather than a decade or so later. Yet, there is no escape from this even though planners, policy makers and programme managers express panic from time to time and attribute India's social and economic problems to its size and growth rate. The family-size preferences of young people now entering the childbearing ages even in North India states are significantly lower than the preferences reported by their parents at the same stage in life. Therefore, good quality uninterrupted family planning and reproductive health services are provided; there is no reason to believe that their preferences and aspirations will not be translated into actual practice.

The further decline in child sex ratio, in spite of 15 years of ban on sex determination test, makes us somber with realization that social legislation serves a purpose only up to a point or that fear of punishment does not always act as a deterrent. It is time we understand and address the cultural and social factors that undervalue girls. Bringing about behavioural change is a tough but a necessary assignment. □

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## FOOD SECURITY

## OVERVIEW

## Sustainable Food Security

M S Swaminathan



*We face many challenges on the farm front. We have to run twice as fast to stay where we are. The current obsession with bricks in institution building should give way to nurturing brains*

**F**ROM 1947 onwards, achieving food security for all has been a national goal. Jawaharlal Nehru articulated this goal by emphasizing "everything else can wait, but not agriculture". Food security is now defined as physical, economic, and social access to balanced diet, clean drinking water, environmental hygiene, and primary healthcare. Unfortunately, in spite of numerous government schemes and safety nets, under and malnutrition remain widespread in our country. Children and women suffer the most. In spite of all the progress we have made in industry and economic growth rate, our reputation in the field of eradication of hunger and malnutrition is poor. In the last decade, emphasis in relation to basic human needs has shifted from a patronage to a rights approach. Thus, we have now legal rights through Parliament

Approved Legislation in the fields of education, information, and employment. Currently, there is an ongoing exercise in developing a National Food Security Bill which will confer on every Indian the legal right to food.

To achieve sustainable food security, the following three dimensions of this problem need concurrent attention:

*Availability of food*, which is a function of production and where absolutely essential, import

*Access to food*, which is a function of purchasing power and employment

*Absorption of food in the body* which is a function of clean drinking water, sanitation and healthcare.

Thus, food and non-food factors relating to food security need integrated attention. Fortunately,

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we have many schemes which address these issues. The Rajiv Gandhi Drinking Water Mission, the Total Sanitation Programme and the National Rural Health Mission can all ensure that whatever food is consumed is beneficial. The various employment generation schemes and more particularly, the Mahatma Gandhi National Rural Employment Programme are helping to provide the minimum essential purchasing power. For increasing the availability of food, several steps have been taken such as the following :

*Rashtriya Krishi Vikas Yojana* with an outlay of Rs. 25000 crore

*National Food Security Mission* with an outlay of about Rs. 6,000 crore

*National Horticulture Mission* with an outlay of Rs 10,363.46 crore during the 11th Five-Year Plan period

There are many other schemes dealing with different areas of production, such as soil healthcare, crop protection, and irrigation. In spite of all these schemes our agriculture is still very vulnerable to the behaviour of the monsoon. For example, during 2009 the widespread drought brought down the agricultural growth rate to -0.2 per cent, as against the target of four per cent. Our country faces the challenge of producing food not only for 1.2 billion people, but also for about a billion farm animals. Nearly seventy per cent of our population live in villages and their main sources of livelihood are crop

and animal husbandry, fisheries, agro-forestry, agro-processing and agri-business. Therefore, in our country agriculture is not merely a food producing machine but is the backbone of the livelihood security system of a majority of our population. This is why we should concentrate on building our food security system with home grown food. Importing food grains by a predominantly agricultural country like ours will have the same impact as importing unemployment and will lead to greater agrarian distress.

(The National Commission on Farmers (2004-06) has provided a detailed strategy for the agricultural progress of India.) The strategy has the following four components:

Defend the Gains already made in the heartland of the green revolution namely, Punjab, Haryana, and Western UP through conservation and climate resilient farming and agronomic techniques. Fortunately the Finance Minister has provided an initial grant for launching this programme during 2010-11.

Extend the Gains to the green but no green revolution areas such as Bihar, Jharkhand, Chattisgarh, West Bengal, Assam and Orissa. NCF has described this region as a "sleeping giant". The large untapped production reservoir of this region should be tapped through an appropriate blend of technology, services, input and output rising policies and above all, farmers' enthusiasm.

Make new Gains in rainfed areas which constitute nearly sixty percent of the cultivated area. Here again there is a considerable difference between potential and actual yields. Most of the pulses and oil seed crops are grown under rainfed conditions. An important requirement for success is rain water harvesting and watershed management. Jal Kunds should be spread all over the Northeast

In addition to the above measures we should take steps to bridge the growing mismatch between production and post harvest technologies. We are not deriving benefit from the opportunities for value addition to primary produce and to agricultural biomass. A national grid of grain storages based on modern technology should be established as soon as possible. Food grain conservation strategy should start from villages where Community Grain Banks containing local grains like Jowar, Bajra, Ragi etc. can be established by Women's Self Help Groups. At least at fifty locations in different parts of the country ultra modern grain storage structures, each capable of providing safe storage to a million tonnes of grains should be established.

Malnutrition persists in all parts of the country. Hidden hunger caused by the deficiency of micronutrients like iron, iodine, zinc, vitamin A and vitamin B12 is affecting over forty percent of our population. The most cost effective and speedy way for overcoming

hidden hunger is by providing horticultural remedies to nutritional maladies. This can be done through mainstreaming nutrition in the National Horticulture Mission. A Home Science graduate well versed in the area of nutrition could be added to the staff of the Horticulture Mission in every one of the 128 agro-climatic regions in our country. Fortunately we have over a billion farm animals comprising cow, buffalo, sheep, goat, and poultry. Through crop livestock integrated farming it will be possible to shift from food to nutrition security. There are also vast opportunities for inland and coastal fisheries including aquaculture.

Food is the first among the hierarchical needs of a human being. Therefore, food security should have the first charge on the available financial resources. Spoilage of grains through lack of investment in storage is a sad reflection on our sense of priorities. A National Food Security Act giving legal rights to food can be implemented only by attending to the safe storage of both grains and perishable commodities like fruits, vegetables, and milk. At the same time animal nutrition will also require greater attention. Unfortunately, grazing land is fast shrinking. Animals are underfed, and are therefore low yielding. Animal food security is essential for human nutrition security.

Above all, we should prepare for meeting the challenge of climate

change. Threats to agriculture, food and water security and the loss of livelihoods will be the most serious consequences of climate change. Even a one degree Celsius rise in mean temperature will affect wheat yield in the heartland of the green revolution, because of a reduction in duration, and reduced grain weight. Climate Refugees comprising of fisher and coastal communities will become internally displaced persons, in the event of sea level rise. The situation will be particularly serious in states like Kerala and Goa and cities like Mumbai where a large percentage of the populations live very near the shoreline. Anticipatory research and development are essential to strengthen our coping capacity to meet such challenges. I would like to indicate briefly some of the steps which should be included under the proposed National Mission for Sustainable Agriculture.

#### Climate Change and Agriculture: Factors to cope with

- Unfavorable changes in temperature.
  - Unfavorable changes in precipitation.
  - Snow Melt and floods.
  - Higher carbon dioxide levels in the atmosphere.
  - Sea level rise.
- A. *Temperature: Impact of a rise in mean temperature by 1 to 2 degree Celsius* (Copenhagen Accord)
- Wheat yield is a gamble in temperature. Major consequence

of 1 degree Celsius rise in mean temperature will be a reduction in the growing period in the case of wheat, and greater risk of vector borne diseases in crops like potato.

- Response measures should include shifting the breeding strategy to per-day rather than per-crop productivity in the case of wheat, and developing and spreading the True Potato Seed (TPS) methodology in the case of potato.
  - Rice has a wide range of adaptation. Short duration varieties or hybrids together with efficient agronomic practices like SRI should be promoted. Hybrid rice strains characterized by hybrid vigour in the development of the root system should be recommended.
  - In all crops, the problem of pests and diseases may become more serious. Plant protection measures should particularly be tailored to meet the threat to crops and farm animals arising from the outbreak of vector-borne diseases.
- B. *Unfavorable alterations in precipitation.*
- Both drought and floods may become more serious. Building a sustainable water security system and spreading more crop and income per drop of water technologies should receive priority attention. Drought and high temperature tolerant crop varieties should



be developed through Marker Assisted Selection, as well as genetic engineering. A good example is the work done at MSSRF, Chennai in transferring to crop plants genes for drought tolerance from *Prosopis Juliflora* and for salinity tolerance from *Avicennia Marina*.

- In the case of floods, post-flood agricultural rehabilitation measure as well as flood tolerant rice varieties with the submergence (Sub) tolerant genes should be developed. After flood waters recede, crops like yellow-flesh sweet potato (rich in Vitamin A) Sathi maize (short duration) and sunflower, as well as fodder crops can be introduced.
- To implement alternative cropping strategies based on different weather conditions, seed reserves should be built. Seed reserves are as important for crop security, as food grain reserves are for food security.
- Drought and Flood Codes indicating the scientific strategies needed for reducing to the extent possible the adverse impact of drought on agriculture should be developed based on computer simulation models. The codes should spell out in implementable terms alternative cropping strategies and contingency plans. Along with Drought and Flood Codes, a Good Weather Code should be developed for each agro-climatic region, in order to

help in maximizing production during good monsoon season.

#### C. *Meeting the challenge of sea level rise*

- The strategy should include the following components:
- Developing Mangrove and non-mangrove bio-shields to minimize the impact of coastal storms and sea water inundation.
- Promoting Sea Water Farming through agri-aqua farms.
- Promoting Below Sea Level Farming, as already practiced by farmers in the Kuttanad area of Kerala.
- Breeding salinity tolerant crop varieties for cultivation in coastal areas, based on genetic engineering techniques.
- Preparing contingency plans for the resettlement of climate refugees.

2010 marks the 80th anniversary of Gandhiji's Dandi March (Salt Satyagraha), which emphasized that sea water is a social resource. 97% of the global water is sea water. We should launch a dynamic programme in the area of sea water farming involving salt tolerant crop varieties, agro-forestry and marine aquaculture.

#### D. *Livestock*

A Food and Fodder Security Plan should be developed to safeguard our Dairy, Poultry, Sheep, Wool and other animal

based enterprises which are the ones coming to the rescue of families living in the desert and semi-arid areas. Fodder and Food Banks should be developed with the help of local self-help groups (SHGS).

#### Mitigation and Adaptation strategies

Mitigation efforts should include both carbon sequestration through green plants and building Soil Carbon Banks through fertilizer trees, which enhance soil nutrient status. Soil carbon enrichment will help to enhance fertilizer use efficiency and thereby help to reverse diminishing factor productivity. A Farm Pond to collect rain water, a biogas plant and a few fertilizer trees in each farm should be promoted in rainfed areas.

Adaptation Measures should include the steps already indicated. In addition, green house horticulture should be promoted to take advantage of higher carbon dioxide content in the atmosphere. Arid and semi-arid horticulture combined with animal husbandry, and agro-forestry systems of land use, will help to enhance both livelihood and nutrition security.

#### Research and Development Infrastructure

##### A. *Research and Training Centres for Climate Risk Management*

According to ICAR, there are 15 major agro-climate zones and 128 mini-agro-climatic zones.

We should establish in each of the 128 zones, a Research and Training Centre for Climate Risk Management. These can be virtual centres headed by an agricultural scientist with computer simulation capability. He/she should prepare computer simulation models of alternative weather probabilities and suggest how to checkmate the adverse effect. Each of these Centres should have the following facilities to convert plan into action.

- A village Resource Centre with Satellite Connectivity established with the help of ISRO.
- A Meteorological Station, capable of facilitating farm decisions on the basis of integrated weather forecasts.

- A Seed Bank containing seeds of the alternative crops to be sown, if the first crop fails due to drought or flood.
- A Fodder and Feed Bank to cater to the needs of Farm Animals.
- A Grain Bank should be established adjoining each Centre particularly with reference to underutilized crops like millets, ragi etc as well as bajra, jowar and maize.

#### ***B. Capacity Building***

The Research and Training Centre for Climate Risk Management should train at least one woman and one male member of every Panchayat as Climate Risk Managers. They

should be well versed in the art and science of climate risk management.

In each of the major agro-climate zones, there should be warehousing and safe storage facilities at least for a million tonnes of food grains. Such a decentralised network of Grain Banks will help to respond quickly to urgent needs.

We thus face many challenges on the farm front. We have to run twice as fast to stay where we are. The current obsession with bricks in institution building should give way to nurturing brains. We will then have a bright agricultural future. □

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**(Kurukshetra)**

1. Tribal Developments in India
2. Tribal displacement
3. Status of tribal in India
4. Bioremediation
5. Migration
6. Role of migration in urban growth
7. Bridging urban rural divide
8. Summary of the report on migration and poverty
9. Rural employment generation programme in India
10. Socio-economic conditions of agricultural labour in India
11. Rural India
12. Pattern of rural workforce participation in India
13. M.N.R.E.G.A.
14. What's gone wrong with micro finance?
15. Development of Irrigation during 5 years plan in India
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17. Creatng new irrigation potential
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19. Water problem in India
20. Food security in India: Key issues
21. Draft national food security bill
22. Food security in India: policy issues and challenges
23. Union budget 2011-12: What does it imply for inclusion growth?
24. Critical review of the union budget 2011-12: Agriculture growth and development
25. Union Budget: Rural development the main focus
26. National knowledge network
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28. MNREGA: Boon or bane to Indian agriculture
29. The challenge of educating rural India
30. Right to eduction
31. Universalization of education
32. Credit facilities in rural India
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## Sample Articles of the Booklet

### THE GLOBAL WATER CRISIS: ISSUES AND SOLUTIONS

-Manzoor K.P

*Water crisis is now a serious human issue that exists when supply of water is less than demand. The increase in population at geometrical rate and over use of water for industrial purposes are considered to be the major reasons for decreasing the water resources in the world. Many studies show that our finite source of fresh water are polluting and depleting by a rapid weather phenomenon.*

**W**e would like to believe there is an infinite supply of water on the planet. But the assumption is tragically false. In fact available freshwater represents less than half of 1 percent of the world's total water stock. The rest is seawater, or inaccessible in ice caps, ground water and soil. And supply of this is finite. Most disturbingly, we are diverting, polluting and depleting that finite source of freshwater at an astonishing rate. United Nations argue that 31 countries are facing the water stress and scarcity

and over one billion people lack adequate access to clean drinking water. By the year 2025, as much as two-thirds of the world's population-estimated to have expanded by an additional 2.6 billion people-will be living in conditions of serious water shortage and one-third will be living in conditions of absolute water scarcity.

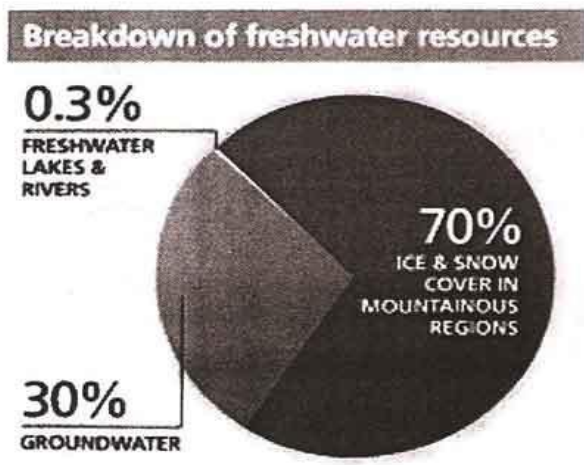
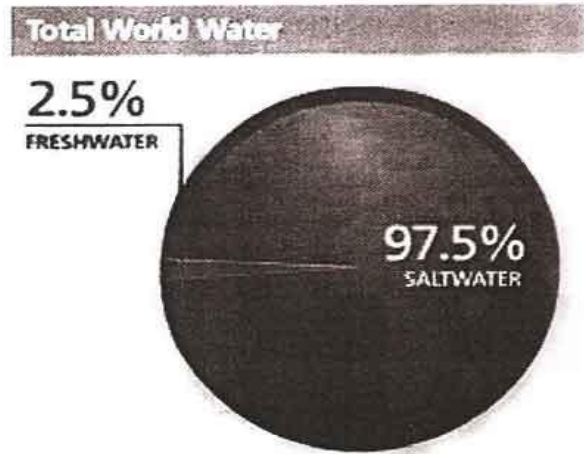
#### Mismanagement of Water Resources

The water crisis is a serious human issue that exists when supply of water is less than

demand. Environmental economists argue that the demand for water is increasing due to the subsequent growth of population in all over the world. When population grows there is no large source of water to satisfy the wants of all human kind, because the water becomes scarce. Demand for water among the urban people is very high compared to the rural people. Migration of rural people to urban places for jobs and business opportunities are the most important reasons for growing water demand in urban areas of many countries. An Amsterdam based ecological management foundation argues that the rainfall is our only renewable source of fresh water. It creates a constant global supply of 40,000 to 50,000 cubic km water per year. But the world population increases roughly by 85 million per year.

Therefore the availability of fresh water per head is decreasing rapidly. The growing population at geometrical rate and subsequent fall in water supply disturbs the demand and supply curve of water. Here is the importance of producing the additional quantity of water for the existence of human beings in next decade. The ground water researchers find that our fresh water source has been declining in many countries since last so many years. The scientific studies conducted in major rivers of Asia and pacific shows the over all decline in the water amount flowing to world's ocean. The climate changes strongly influence the reduction of water amount and quality because the large level of increase in carbon emission by the effects of global warming pollutes the drinking water resources dangerously. Mountainous forested watersheds are the most important fresh water yield area in the world. But we are loosing the supply of quality water due to the poor land management and the deforestation. Therefore, the sustainable and equitable water management is necessary for saving the world from human and economic tragedy.

Liberal attitude of governments towards water use leads to decrease in water resources in major industrialist countries. This liberal attitude of governments are exploited by the big corporate for misusing water resources for their industrial purpose. The big plants misuse thousand gallons of clean water to create electricity for working their machines and tools. Thus, the industrialists are building their merchant power plant in rural areas where the plenty of natural water can acquire. Experts opine that industrialists use 84 million gallons of water (15% of total water use) a day in southwest Louisiana.



Annexure: I- Total world water  
Source: UN Water

### Solution for Water Crisis:

1) **Water harvesting:** This is a traditional technique first used by the Greeks and island people to save the water and obviously, it can be the first solution for water scarcity. Harvesting water means harvesting rain. People are identifying the truth that the supply of water comes from the sky, which is rain. But in some countries are not getting adequate rain to meet their water demand. Therefore water harvesting being a great solution for those people. These people can find the solution for their water scarcity by the caught, stored of rain water. Water harvesting raises the supply of water. Consequently, we can manage the supply-demand curves of the water. Government should promote the rain water harvesters. In India, Delhi government announces the award for the 'best rain harvesters' which provides 2 lakh rupees for group and one lakh rupee for individual.

2) **Develop sea water desalination technologies:** Desalination of sea water is another big solution for water scarcity. Singapore and Middle East countries wholly depends this technology for increasing their water supply. Many technologies are using for the desalination of sea water in different nations. More research and development on sea desalination technology will help us to reduce the energy consumption because the major portion of water resources extremely using for the 'creation of energy. Unfortunately, water desalination technologies are untouchable to poor nations due to its expensive nature.

3) **Organize the training workshop on water use and recycle:** the water work shops help the society to be more vigilant on water

preservation. The work shops on water economies, water policy and water ethics promotes the strong awareness on water scarcity and water use.

4) **Water regulation and strict water policies:** 'safe drinking water' policy is necessary for the smooth distribution of water and intervenes of private parties on water distribution creates water conflicts in the society. Strong environmental law can control over pumping and ground water exploitation.

### Conclusion:

The United Nations reports that two third of world population will face serious problems from the shortage of drinking water by 2025. Thus shortage in water supply in coming years will have a great impact on our food security, because we use major portion of water (70% of global use) for agricultural

***Two third of world population will face serious problems from the shortage of drinking water by 2025. Thus shortage in water supply in coming years will have a great impact on our food security, because we use major portion of water (70% of global use) for agricultural purpose.***

purpose. The impact of water crisis is very dangerous, because the unlimited use and pollution of water resources creates an adverse effect on our bio diversity. A strong environmental law is necessary to save the world from water pollution and water scarcity. The government can play an important role in detaining the water exploitation by the strict water policy and strong water regulation. But, instead of protecting our water

resources, some industrialist nations privatize the water supply that creates water conflicts in the society. Public controls 97% of water distribution in the poor countries and private investments in water supply on these countries can have a negative impact on the living status of poor people.

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